Images in Cardiovascular Medicine

Multiple Coronary–Cameral Fistulae Causing Angina Pectoris

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A 55-year-old man came to our hospital with exertional chest pain, dyspnea, and fatigue that had lasted 3 months. On physical examination, his blood pressure was 130/70 mmHg, and his heart rate was 85 beats/min. Electrocardiography showed sinus rhythm and no specific changes in the ST segment or the T wave. Echocardiography revealed ventricles of normal size and function. Coronary angiography revealed multiple fistulae that arose from all 3 major coronary arteries and drained exclusively into the left ventricle (Figs. 1 and 2). The coronary arteries were free of atherosclerotic disease. We performed repeat echocardiography, focusing on the fistulae, which indeed drained into the left ventricle (Fig. 3). The patient was discharged from the hospital with instructions to take 100 mg of metoprolol daily. He has experienced no anginal symptoms for 1 year.

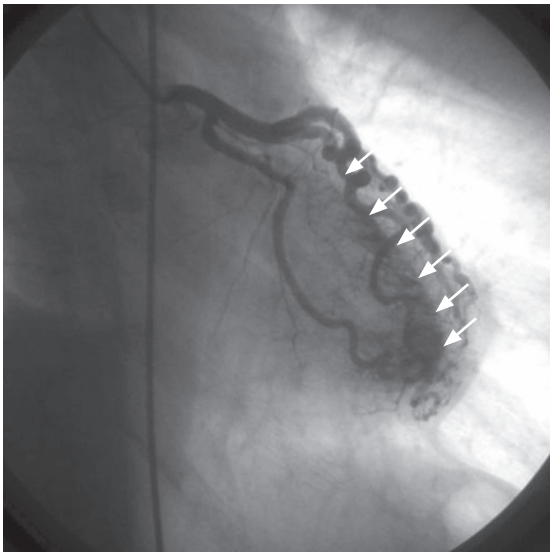

Fig. 1 *Coronary angiography shows fistulae from the left anterior descending coronary artery to the left ventricle (arrows).*

Real-time motion image is available at www.texasheart.org/journal.

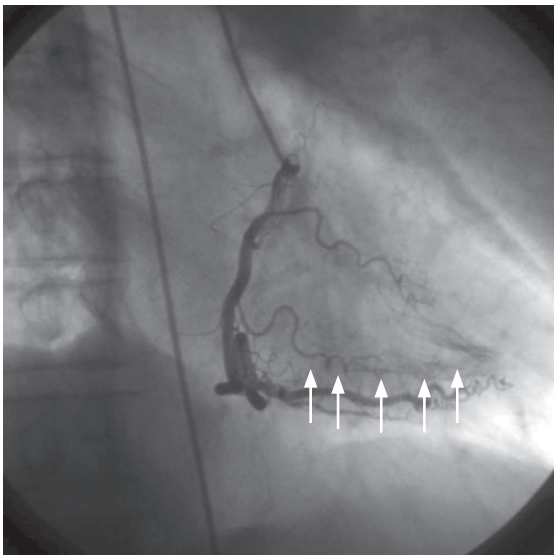

Fig. 2 *Coronary angiography shows fistulae from the right coronary artery to the left ventricle (arrows).*

Real-time motion image is available at www.texasheart.org/journal.

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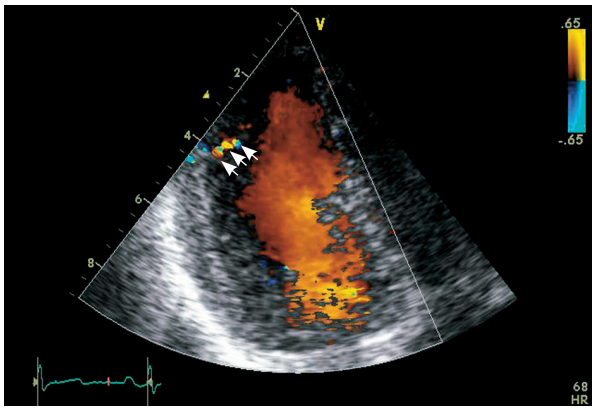

Fig. 3 *Transthoracic color-flow Doppler echocardiography (apical 4-chamber view) shows a fistula draining into the left ventricle (arrows).*

Comment

Coronary–cameral fistulae are rare and are predominantly congenital communications between the coronary arterial circulation and the chambers or great vessels of the heart. It is rare that a coronary artery fistula causes myocardial ischemia. Therapeutic approaches are designed to reduce the myocardial oxygen demand and thereby ameliorate the demand–supply mismatch. Symptomatic relief has been achieved with β-blockers or with calcium-channel blockers.[1,2]

Sufficiently enlarged coronary arteries can be detected by use of 2-dimensional echocardiography. In children, the diagnosis of coronary artery fistula can often be made with transthoracic 2-dimensional and color-flow Doppler echocardiography. However, in adults, transesophageal echocardiography may be more sensitive.[3,4] Coronary arteriography is the best method by which to determine the origin of such fistulae; indeed, in our patient, this method showed multiple coronary artery fistulae.

Patients who have small fistulae have an excellent long-term prognosis.[5] Larger fistulae, when they are hemodynamically significant, should be closed by means of surgery or transcatheter embolization.[6-8] In our patient, the fistulae were small and not suitable for percutaneous closure, and, because metoprolol therapy relieved the patient's symptoms, we did not consider closing the fistulae.

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